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Virtual Private Lan Services (VPLS) Management Information Base

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VPLS Management Information Base

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Abstract

This memo defines an experimental portion of the Management Information Base for use with network management protocols in the Internet community. In particular, it describes managed objects for modeling of Virtual Private LAN services. It needs to be used in conjunction with Pseudowire (PW) Management Information Base [[RFC5601](#)].

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[1.](#) Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it defines a MIB module that can be used to manage VPLS (Virtual Private LAN Services) for transmission over a packet Switched Network (PSN) using LDP [[RFC4762](#)] or BGP [[RFC4761](#)] signaling. This MIB module provides generic management of VPLS services as defined by the IETF L2VPN Working Group. Additional MIB modules are also defined for management of LDP VPLS and BGP VPLS services as defined by the IETF L2VPN Working Group.

[2.](#) Terminology

This document adopts the definitions, acronyms and mechanisms described in [[RFC3985](#)]. Unless otherwise stated, the mechanisms of [[RFC3985](#)] apply and will not be re-described here.

[2.1.](#) Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",

"SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

3. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [section 7 of RFC 3410](#) [[RFC3410](#)].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a set of MIB modules that are compliant to the SMIV2, which is described in STD 58 [[RFC2578](#)] [[RFC2579](#)] [[RFC2580](#)].

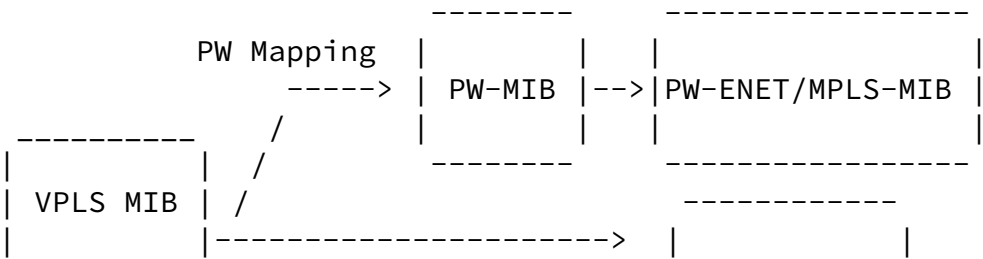
4. VPLS MIB Module Architecture

The MIB structure for defining a VPLS service is composed from three MIB modules.

The first is the VPLS-GENERIC-MIB module, which configures general parameters of the VPLS service that are common to all types of VPLS services.

The second is the VPLS-LDP-MIB module, which configures VPLS-LDP [[RFC4762](#)] specific parameters of the VPLS service.

The third is the VPLS-BGP-MIB module, which configures VPLS-BGP [[RFC4761](#)] specific parameters of the VPLS service.



-----	MAC addr. mapping using		BRIDGE-MIB	
	[SNMP-CONTEXT-MAP-MIB]			

Figure A

Additionally service-specific modules may be defined in other documents.

[4.1.](#) VPLS-GENERIC-MIB Module Usage

An entry in the vplsConfigTable MUST exist for every VPLS service. This table holds generic parameters which apply to a VPLS service which can be signaled via LDP or BGP.

A conceptual row can be created in the vplsConfigTable in one of the following ways:

- 1) An NMS creates a row in the vplsConfigTable using SNMP Set requests which causes the node to create and start a new VPLS service. The agent MUST support the creation of VPLS services in this way.
- 2) The agent MAY create a row in the vplsConfigTable automatically due to some auto discovery application, or based on

configuration that is done through non-SNMP applications. This mode is OPTIONAL.

At least one entry in the vplsPwBindTable MUST exist for each VPLS service. This binding table links one VPLS service with one or many pseudowires (defined in [[RFC5601](#)]). Each pseudowire may be used as a spoke or as part of a mesh based on the parameters defined in this table.

For each VPLS service, an entry in the vplsBgpAdConfigTable MUST exist if Auto-discovery has been enabled for that service. This table stores the information required for auto-discovery.

For each VPLS service, at least one entry in the `vplsBgpRteTargetTable` MUST exist if auto-discovery has been configured for that service. One service can import and export multiple Route Targets.

[4.2.](#) VPLS-LDP-MIB Module Usage

An entry in the `vplsLdpConfigTable` MUST be created by the agent for a VPLS service signaled using LDP.

[4.3.](#) VPLS-BGP-MIB Module Usage

An entry in the `vplsBgpConfigTable` MUST be created by the agent for a VPLS service signaled using BGP.

[4.4.](#) Relations to other MIB modules

- The `vplsPwBindTable` links the VPLS entry to the `pwTable` in [\[RFC5601\]](#)
- The association of MAC addresses to VPLS entries is possible by adding a turnstile function to interpret the entries in [\[SNMP-CONTEXT-MAP-MIB\]](#). In [\[SNMP-CONTEXT-MAP-MIB\]](#) there is a mapping between the `vacmContextName` [\[RFC3415\]](#) to `dot1dBasePort` [\[RFC4188\]](#) and `vplsConfigIndex`. This mapping can be used to map the `vplsConfigIndex` to a `dot1dBasePort` in the BRIDGE-MIB. This resulting value of `dot1dBasePort` can be used to access corresponding MAC addresses that belong to a particular `vplsConfigIndex`.
- Unless all the necessary entries in the applicable tables have been created and all the parameters have been consistently configured in those tables, signaling cannot be performed

from the local node, and the `vplsConfigRowStatus` should report 'notReady'.

- Statistics can be gathered from the Pseudowire performance tables in [\[RFC5601\]](#)

5. Example of the VPLS MIB modules usage

In this section we provide an example of using the MIB objects described in [section 7](#) to set up a VPLS service over MPLS. While this example is not meant to illustrate every permutation of the MIB, it is intended as an aid to understanding some of the key concepts. It is meant to be read after going through the MIB itself.

In this example a VPLS service (VPLS-A) is setup using LDP for signaling the pseudowire. The binding between the VPLS service and the pseudowire is reflected in the VplsPwBindTable. The pseudowire configuration is defined in [RFC 5601](#).

In the VPLS-GENERIC-MIB module:

Row in vplsConfigTable:

```
{
    vplsConfigIndex          10,
    vplsConfigName           "VPLS-A"
    vplsConfigAdminStatus    1(up),
    vplsConfigMacLearning    1(true),
    vplsConfigDiscardUnknownDest 2(false),
    vplsConfigMacAging       1(true),
    vplsConfigVpnId          "100:10"
    vplsConfigRowStatus      1(active)
}
```

Row in vplsStatusTable:

```
{
    vplsStatusOperStatus    1(up),
    vplsStatusPeerCount     1
}
```

Row in VplsPwBindTable :

```
{
    vplsPwBindConfigType    manual,
    vplsPwBindType          spoke,
    vplsPwBindRowStatus     1(active),
    vplsPwBindStorageType   volatile
}
```

In the VPLS-LDP-MIB module:

Row in vplsLdpConfigTable:

```
{
    vplsLdpConfigMacAddrWithdraw          1(true),

}
```

Row in vplsLdpPwBindTable:

```
{
    vplsLdpPwBindType                      1(mesh),
    vplsLdpPwBindMacAddressLimit           100
}
```

[6.](#) Object definitions

[6.1.](#) VPLS-GENERIC-MIB

This MIB module makes references to the following documents.

[[RFC2578](#)], [[RFC2579](#)], [[RFC2580](#)], [[RFC3411](#)],
[[RFC2863](#)], [[RFC4265](#)] and [[RFC3813](#)].

```
VPLS-GENERIC-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
NOTIFICATION-TYPE, MODULE-IDENTITY, OBJECT-TYPE,
Unsigned32, Counter32, transmission
    FROM SNMPv2-SMI                                -- RFC2578
```

```
MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
    FROM SNMPv2-CONF                                -- RFC2580
```

```
TruthValue, RowStatus, StorageType, TEXTUAL-CONVENTION
    FROM SNMPv2-TC                                  -- RFC2579
```

```
SnmpAdminString
    FROM SNMP-FRAMEWORK-MIB                        -- RFC3411
```

```
pwIndex
    FROM PW-STD-MIB
```

```
VPNIdOrZero
    FROM VPN-TC-STD-MIB                            -- RFC4265
```


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;

vpplsGenericDraft01MIB MODULE-IDENTITY

-- RFC Editor: Please replace vpplsGenericDraft01MIB with
-- vpplsGenericMIB throughout the MIB and remove
-- this note.

LAST-UPDATED "201302221200Z" -- 22 Feb 2013 12:00:00 GMT

ORGANIZATION "Layer 2 Virtual Private Networks (L2VPN)
Working Group"

CONTACT-INFO

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The L2VPN Working Group (email distribution l2vpn@ietf.org,
<http://www.ietf.org/html.charters/l2vpn-charter.html>)

"

DESCRIPTION

"Copyright (C) The IETF Trust (2013). The initial
version of this MIB module was published in RFC XXXX.

-- RFC Editor: Please replace XXXX with RFC number & remove
-- this note.

For full legal notices see the RFC itself or see:

<http://www.ietf.org/copyrights/ianamib.html>

This MIB module contains generic managed object definitions
for Virtual Private LAN Services as define in [[RFC4762](#)] and
[[RFC4761](#)]

This MIB module enables the use of any underlying Pseudowire
network."

-- Revision history.

REVISION

"201302221200Z" -- 22 Feb 2013 12:00:00 GMT

DESCRIPTION

"1) Changed the OID for vpplsBgpRteTargetTable from vpplsObjects.6
to vpplsObjects.5

2) Index to VplsPwBindTable is now pwIndex, not vplsPwBindIndex.
3) vplsConfigMtu increased to 9192
4) Default value for vplsConfigStorageType changed to nonvolatile.
5) vplsConfigServiceType should be a property of each PW. Deleting this object and adjusting the corresponding object indexes."
REVISION

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"200608301200Z" -- 30 August 2006 12:00:00 GMT

DESCRIPTION

"Changes from previous version:

- 1) Moved LDP Specific information to VPLS-LDP-MIB
 - 2) Created the vplsStatusTable to store status information.
- "

REVISION

"200606041200Z" -- 4 June 2006 12:00:00 GMT

DESCRIPTION "Initial version published as part of RFC YYYY."
-- RFC Editor: please replace YYYY with IANA assigned value, and
-- delete this note.

::= { transmission XXXX }

-- RFC Editor: please replace XXXX with IANA assigned value, and
-- delete this note.

-- VPLS BGP Auto-Discovery specific Textual Convention

VplsBgpRouteDistinguisher ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Syntax for a route distinguisher. For a complete definition of a route distinguisher, see [[RFC4364](#)]. For more details on use of a route distinguisher for a VPLS service, see [[RFC4761](#)]"

REFERENCE

"[[RFC4364](#)]"

SYNTAX OCTET STRING(SIZE (0..256))

VplsBgpRouteTarget ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Syntax for a route target. For a complete definition of a route target, see [[RFC4364](#)]."

REFERENCE

"[[RFC4364](#)]"

SYNTAX OCTET STRING(SIZE (0..256))

VplsBgpRouteTargetType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Used to define the type of a route target usage. Route targets can be specified to be imported, exported, or both. For a complete definition of a route target, see [[RFC4364](#)]."

REFERENCE

"[[RFC4364](#)]"

SYNTAX INTEGER { import(1), export(2), both(3) }

-- Top-level components of this MIB.

-- Notifications

vplsNotifications OBJECT IDENTIFIER
::= { vplsGenericDraft01MIB 0 }

-- Tables, Scalars

vplsObjects OBJECT IDENTIFIER
::= { vplsGenericDraft01MIB 1 }

-- Conformance

vplsConformance OBJECT IDENTIFIER
::= { vplsGenericDraft01MIB 2 }

-- PW Virtual Connection Table

vplsConfigIndexNext OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains an appropriate value to be used for vplsConfigIndex when creating entries in the vplsConfigTable. The value 0 indicates that no

unassigned entries are available. To obtain the value of vplsConfigIndex for a new entry in the vplsConfigTable, the manager issues a management protocol retrieval operation to obtain the current value of vplsConfigIndex. After each retrieval operation, the agent should modify the value to reflect the next unassigned index. After a manager retrieves a value the agent will determine through its local policy when this index value will be made available for reuse."

::= { vplsObjects 1 }

vplsConfigTable OBJECT-TYPE

SYNTAX SEQUENCE OF VplsConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table specifies information for configuring and monitoring Virtual Private Lan Services(VPLS)."

::= { vplsObjects 2 }

vplsConfigEntry OBJECT-TYPE

SYNTAX VplsConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A row in this table represents a Virtual Private Lan Service(VPLS) in a packet network. It is indexed by vplsConfigIndex, which uniquely identifies a single VPLS.

A row is created via SNMP or by the agent if a VPLS service is created by a non-SNMP application or due to the Auto-Discovery process.

None of the read-create objects values can be changed when vplsConfigRowStatus is in the active(1) state. Changes are allowed when the vplsConfigRowStatus is in notInService(2) or notReady(3) states only.

If the operator needs to change one of the values for an active row the vplsConfigRowStatus should be first changed to notInService(2), the objects may then be changed, and finally the vplsConfigRowStatus should be changed to active(1) in order to re-initiate the signaling process with the new values in effect.

"

```
INDEX          { vplsConfigIndex }
::= { vplsConfigTable 1 }
```

VplsConfigEntry ::=

```
SEQUENCE {
    vplsConfigIndex          Unsigned32,
    vplsConfigName           SnmpAdminString,
    vplsConfigDescr         SnmpAdminString,
    vplsConfigAdminStatus   INTEGER,
    vplsConfigMacLearning   TruthValue,
    vplsConfigDiscardUnknownDest TruthValue,
    vplsConfigMacAging      TruthValue,
    vplsConfigFwdFullHighWatermark Unsigned32,
    vplsConfigFwdFullLowWatermark Unsigned32,
    vplsConfigRowStatus     RowStatus,
    vplsConfigMtu           Unsigned32,
    vplsConfigVpnId         VPNIidOrZero,
    vplsConfigStorageType   StorageType,
    vplsConfigSignalingType INTEGER
}
```

```
vplsConfigIndex OBJECT-TYPE
    SYNTAX          Unsigned32 (1..2147483647)
    MAX-ACCESS      not-accessible
```

STATUS current

DESCRIPTION

"Unique index for the conceptual row identifying a VPLS service."

```
::= { vplsConfigEntry 1 }
```

vplsConfigName OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-create

```

STATUS          current
DESCRIPTION
    "A textual name of the VPLS.
    If there is no local name, or this object is
    otherwise not applicable, then this object MUST
    contain a zero-length octet string."
DEFVAL          { "" }
::= { vplsConfigEntry 2 }

vplsConfigDescr OBJECT-TYPE
SYNTAX          SnmpAdminString
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "A textual string containing information about the
    VPLS service. If there is no information for this VPLS
    service, then this object MUST contain a zero-length
    octet string."
DEFVAL          { "" }
::= { vplsConfigEntry 3 }

vplsConfigAdminStatus OBJECT-TYPE
SYNTAX          INTEGER {
                    up(1),
                    down(2),
                    testing(3)  -- in some test mode
                }
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "The desired administrative state of the VPLS
    service. If the administrative status of the
    VPLS service is changed to enabled then this
    service is able to utilize pseudowires to
    perform the tasks of a VPLS service.
    The testing(3) state indicates that no operational
    packets can be passed. "
DEFVAL          { down }

```

```

::= { vplsConfigEntry 4 }

```

vplsConfigMacLearning OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies if MAC Learning is enabled in this service. If this object is true then MAC Learning is enabled. If false, then MAC Learning is disabled."

DEFVAL { true }

::= { vplsConfigEntry 6 }

vplsConfigDiscardUnknownDest OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"If the value of this object is 'true', then frames received with an unknown destination MAC are discarded in this VPLS. If 'false', then the packets are processed."

DEFVAL { false }

::= { vplsConfigEntry 7 }

vplsConfigMacAging OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"If the value of this object is 'true' then the MAC aging process is enabled in this VPLS. If 'false', then the MAC aging process is disabled"

DEFVAL { true }

::= { vplsConfigEntry 8 }

vplsConfigFwdFullHighWatermark OBJECT-TYPE

SYNTAX Unsigned32 (0..100)

UNITS "percentage"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the utilization of the forwarding database for this VPLS instance at which the vplsFwdFullAlarmRaised notification will be sent."

```
DEFVAL          { 95 }  
::= { vplsConfigEntry 10 }
```

vplsConfigFwdFullLowWatermark OBJECT-TYPE

```
SYNTAX          Unsigned32 (0..100)
```

```
UNITS           "percentage"
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"This object specifies the utilization of the forwarding database for this VPLS instance at which the vplsFwdFullAlarmCleared notification will be sent."

```
DEFVAL          { 90 }
```

```
::= { vplsConfigEntry 11 }
```

vplsConfigRowStatus OBJECT-TYPE

```
SYNTAX          RowStatus
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"For creating, modifying, and deleting this row.

All other objects in this row must be set to valid values before this object can be set to active(1).

None of the read-create objects in the conceptual rows may be changed when this object is in the active(1) state.

If this object is set to destroy(6) or deleted by the agent, all associated entries in the vplsPWBindTable, vplsBGPRTeTargetTable and vplsBgpVETable shall be deleted."

```
::= { vplsConfigEntry 12 }
```

vplsConfigMtu OBJECT-TYPE

```
SYNTAX          Unsigned32 (64..9192)
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"The value of this object specifies the MTU of this vpls instance. This can be used to limit the MTU to a value lower than the MTU supported by the associated Pseudowires"


```
DEFVAL          { 1518 }  
::= { vplsConfigEntry 13 }
```

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vplsConfigVpnId OBJECT-TYPE

```
SYNTAX          VPNIIdOrZero  
MAX-ACCESS      read-create  
STATUS          current
```

DESCRIPTION

"This objects indicates the IEEE 802-1990
VPN ID of the associated VPLS service."

```
::= { vplsConfigEntry 14 }
```

vplsConfigStorageType OBJECT-TYPE

```
SYNTAX          StorageType  
MAX-ACCESS      read-create  
STATUS          current
```

DESCRIPTION

"This variable indicates the storage type for this row."

```
DEFVAL { nonVolatile }
```

```
::= { vplsConfigEntry 15 }
```

vplsConfigSignalingType OBJECT-TYPE

```
SYNTAX          INTEGER {  
                ldp(1),  
                bgp(2),  
                none(3)
```

```
                }
```

```
MAX-ACCESS      read-create
```

```
STATUS          current
```

DESCRIPTION

"Desired signaling type of the VPLS service.

If the value of this object is ldp(1), then a
corresponding entry in vplsLdpConfigTable is required.

If the value of this object is bgp(2), then a
corresponding entry in vplsBgpConfigTable is required.

If the value of this object is none(3), then it indicates a static configuration of PW labels."
 DEFVAL { none }
 ::= { vplsConfigEntry 16 }

-- VPLS Status table

vplsStatusTable OBJECT-TYPE
 SYNTAX SEQUENCE OF VplsStatusEntry
 MAX-ACCESS not-accessible
 STATUS current

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DESCRIPTION
 "This table provides information for monitoring
 Virtual Private Lan Services (VPLS).
 "
 ::= { vplsObjects 3 }

vplsStatusEntry OBJECT-TYPE
 SYNTAX VplsStatusEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "A row in this table represents a Virtual Private Lan
 Service(VPLS) in a packet network. It is indexed by
 vplsConfigIndex, which uniquely identifies a single VPLS.

 A row in this table is automatically created by the agent
 when a VPLS service is first set to active.
 "
 AUGMENTS { vplsConfigEntry }
 ::= { vplsStatusTable 1 }

VplsStatusEntry ::=

SEQUENCE {	
vplsStatusOperStatus	INTEGER,
vplsStatusPeerCount	Counter32
}	

vplsStatusOperStatus OBJECT-TYPE
 SYNTAX INTEGER {

```

                                other(0),
                                up(1),
                                down(2)
                                }
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
    "The current operational state of this VPLS Service."
::= { vplsStatusEntry 1 }

vplsStatusPeerCount OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This objects specifies the number of peers
        (pseudowires) present in this VPLS instance."
    ::= { vplsStatusEntry 2 }

```

-- VPLS PW Binding Table

```

vplsPwBindTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF VplsPwBindEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table provides an association between a
        VPLS service and the corresponding pseudowires.
        A service can have more than one pseudowire
        association. Pseudowires are defined in
        the pwTable"
    ::= { vplsObjects 4 }

vplsPwBindEntry OBJECT-TYPE
    SYNTAX      VplsPwBindEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each row represents an association between a
        VPLS instance and a pseudowire

```

defined in the pwTable. Each index is unique in describing an entry in this table. However both indexes are required to define the one to many association of service to pseudowire.

Entries in this table may be created or deleted through SNMP, as side-effects of console or other non-SNMP management commands, or upon learning via autodiscovery.

It is optional for the agent to allow entries to be created that point to non-existent entries in vplsConfigTable."

```
INDEX { vplsConfigIndex, pwIndex }
::= { vplsPwBindTable 1 }
```

```
VplsPwBindEntry ::=
SEQUENCE {
    vplsPwBindConfigType      INTEGER,
    vplsPwBindType            INTEGER,
    vplsPwBindRowStatus      RowStatus,
    vplsPwBindStorageType    StorageType
}
```

```
vplsPwBindConfigType OBJECT-TYPE
SYNTAX                INTEGER {
```

```

manual (1),
autodiscovery (2)
}
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
    "The value of this object indicates
    whether the Pseudo Wire binding was created
    via SNMP/Console or via Auto-Discovery.

    The value of this object must be
    specified when the row is created and cannot
    be changed while the row status is active(1)"
```

```
::= { vplsPwBindEntry 1 }
```

```
vplsPwBindType    OBJECT-TYPE
  SYNTAX          INTEGER {
                        mesh (1),
                        spoke (2)
                      }
  MAX-ACCESS      read-create
  STATUS          current
  DESCRIPTION
    "The value of this object indicates
    whether the pseudowire binding is of
    type mesh or spoke.

    The value of this object must be
    specified when the row is created and cannot
    be changed while the row status is active(1)"
  ::= { vplsPwBindEntry 2 }
```

```
vplsPwBindRowStatus OBJECT-TYPE
  SYNTAX          RowStatus
  MAX-ACCESS      read-create
  STATUS          current
  DESCRIPTION
    "For creating, modifying, and deleting this row.

    All other objects in this row must be set to valid
    values before this object can be set to active(1).

    None of the read-create objects in the
    conceptual rows may be changed when this
    object is in the active(1) state.

    If autodiscovered entries are deleted they would
    likely re-appear in the next autodiscovery interval."
```

```
::= { vplsPwBindEntry 3 }
```

```
vplsPwBindStorageType OBJECT-TYPE
  SYNTAX          StorageType
  MAX-ACCESS      read-create
```

```

STATUS          current
DESCRIPTION
    "This variable indicates the storage type for this row."
DEFVAL { volatile }
::= { vplsPwBindEntry 4 }

```

```
-- vplsBgpADConfigTable
```

```

vplsBgpADConfigTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF VplsBgpADConfigEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table specifies information for configuring
        BGP Auto-Discovery parameters for a given VPLS service.
        "
        ::= { vplsObjects 5 }

vplsBgpADConfigEntry OBJECT-TYPE
    SYNTAX          VplsBgpADConfigEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "A row in this table indicates that BGP based Auto-
        Discovery is in use for this instance of VPLS.
        A row in this table is indexed by vplsConfigIndex, which
        uniquely identifies a single VPLS.

        Entries in this table may be created or deleted
        through SNMP, as side-effects of console or other
        non-SNMP management commands, or upon learning via
        autodiscovery.

        None of the read-create objects can be changed when
        vplsBGPADConfigRowStatus is in active(1) state. Changes
        are allowed when the vplsBGPADConfigRowStatus is in
        notInService(2) or notReady(3) states only.
        If the operator needs to change one of the values
        for an active row the vplsConfigRowStatus should be
        first changed to notInService(2), the objects may
        then be changed, and finally the vplsConfigRowStatus
        should be changed to active(1) in order to
        re-initiate the signaling process with the new

```

```

        values in effect."
INDEX      { vplsConfigIndex }
::= { vplsBgpADConfigTable 1 }

```

```

VplsBgpADConfigEntry ::=
SEQUENCE {
    vplsBgpADConfigRouteDistinguisher  VplsBgpRouteDistinguisher,
    vplsBgpADConfigPrefix                Unsigned32,
    vplsBgpADConfigVplsId                VplsBgpRouteDistinguisher,
    vplsBgpADConfigRowStatus              RowStatus,
    vplsBgpADConfigStorageType            StorageType
}

```

```

vplsBgpADConfigRouteDistinguisher OBJECT-TYPE
SYNTAX      VplsBgpRouteDistinguisher
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    " The route distinguisher for this VPLS. See [RFC4364]
    for a complete definition of a route distinguisher.
    for more details on use of a route distinguisher
    for a VPLS service, see [RFC4761]. When not configured, the
    value is derived from the lower 6 bytes of
    vplsBgpADConfigVplsId.
    "
    ::= { vplsBgpADConfigEntry 1 }

```

```

vplsBgpADConfigPrefix      OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    " In case of auto-discovery the default prefix advertised
    is the IP address of the loopback. In case the user wants
    to override the loopback address, vplsBgpADConfigPrefix
    should be set. When this value is non-zero this value is
    used along with vplsBgpADConfigRouteDistinguisher in the
    NLRI, see [RFC6074]
    "
    DEFVAL { 0 }
    ::= { vplsBgpADConfigEntry 2 }

```

```

vplsBgpADConfigVplsId      OBJECT-TYPE
SYNTAX      VplsBgpRouteDistinguisher
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    " VplsId is a unique identifier for all VSIs belonging to

```

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the same VPLS. It is advertised as an extended community.
"

::= { vplsBgpADConfigEntry 3 }

vplsBgpADConfigRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"For creating, modifying, and deleting this row.

All other objects in this row must be set to valid values before this object can be set to active(1).

None of the read-create objects in the conceptual rows may be changed when this object is in the active(1) state."

::= { vplsBgpADConfigEntry 4 }

vplsBgpADConfigStorageType OBJECT-TYPE

SYNTAX StorageType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This variable indicates the storage type for this row."

DEFVAL { nonVolatile }

::= { vplsBgpADConfigEntry 5 }

-- vplsBgpRteTargetTable

vplsBgpRteTargetTable OBJECT-TYPE

SYNTAX SEQUENCE OF VplsBgpRteTargetEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

" This table specifies the list of Route Targets imported or exported by BGP during auto-discovery of VPLS.
"

::= { vplsObjects 6 }

vplsBgpRteTargetEntry	OBJECT-TYPE
SYNTAX	VplsBgpRteTargetEntry
MAX-ACCESS	not-accessible
STATUS	current
DESCRIPTION	"An entry in this table specifies the value of the Route Target being used by BGP. Depending on the value of vplsBgpRteTargetType a Route Target might be exported or

imported or both. Every VPLS which uses auto-discovery for finding peer nodes can import and export multiple Route Targets. This representation allows support for hierarchical VPLS.

Entries in this table may be created or deleted through SNMP, as side-effects of console or other non-SNMP management commands, or upon learning via autodiscovery.

It is optional for the agent to allow entries to be created that point to non-existent entries in vplsConfigTable."

INDEX { vplsConfigIndex, vplsBgpRteTargetIndex }
 ::= { vplsBgpRteTargetTable 1 }

VplsBgpRteTargetEntry ::=

SEQUENCE {	
vplsBgpRteTargetIndex	Unsigned32,
vplsBgpRteTargetRTType	VplsBgpRouteTargetType,
vplsBgpRteTargetRT	VplsBgpRouteTarget,
vplsBgpRteTargetRowStatus	RowStatus,
vplsBgpRteTargetStorageType	StorageType
}	

vplsBgpRteTargetIndex	OBJECT-TYPE
SYNTAX	Unsigned32
MAX-ACCESS	not-accessible
STATUS	current
DESCRIPTION	"This index along with vplsConfigIndex, identifies one entry in the vplsBgpRteTargetTable. By keeping

vplsConfigIndex constant and using new value of vplsBgpRteTargetIndex users can configure multiple Route Targets for the same VPLS.

"

::= { vplsBgpRteTargetEntry 1 }

vplsBgpRteTargetRTType OBJECT-TYPE

SYNTAX VplsBgpRouteTargetType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

" Used to define the type of a route target usage. Route targets can be specified to be imported, exported, or both. For a complete definition of a route target, see [[RFC4364](#)]."

::= { vplsBgpRteTargetEntry 2 }

vplsBgpRteTargetRT OBJECT-TYPE

SYNTAX VplsBgpRouteTarget

MAX-ACCESS read-create

STATUS current

DESCRIPTION

" The route target associated with the VPLS service. For more details on use of route targets for a VPLS service, see [[RFC4761](#)]

"

::= { vplsBgpRteTargetEntry 3 }

vplsBgpRteTargetRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This variable is used to create, modify, and/or delete a row in this table.

All other objects in this row must be set to valid values before this object can be set to active(1).

When a row in this table is in active(1) state, no

objects in that row can be modified.

If autodiscovered entries are deleted they would likely re-appear in the next autodiscovery interval."
::= { vplsBgpRteTargetEntry 4 }

vplsBgpRteTargetStorageType OBJECT-TYPE
SYNTAX StorageType
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This variable indicates the storage type for this row."
DEFVAL { volatile }
::= { vplsBgpRteTargetEntry 5 }

vplsStatusNotifEnable OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"If this object is set to true(1), then it enables the emission of vplsStatusChanged notification, otherwise this notification is not

emitted."
REFERENCE
"See also [\[RFC3413\]](#) for explanation that notifications are under the ultimate control of the MIB module in this document."
DEFVAL { false }
::= { vplsObjects 7 }

vplsNotificationMaxRate OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object indicates the maximum number of notifications issued per second. If events occur more rapidly, the implementation may simply fail to

```

        emit these notifications during that period, or may
        queue them until an appropriate time. A value of 0
        means no throttling is applied and events may be
        notified at the rate at which they occur."
    DEFVAL          { 0 }
    ::= { vplsObjects 8 }
-- VPLS Service Notifications

vplsStatusChanged NOTIFICATION-TYPE
    OBJECTS {
        vplsConfigVpnId,
        vplsConfigAdminStatus,
        vplsStatusOperStatus
    }
    STATUS          current
    DESCRIPTION
        "The vplsStatusChanged notification is generated
        when there is a change in the administrative or
        operating status of a VPLS service.

        The object instances included in the notification are
        the ones associated with the VPLS service whose
        status has changed."
    ::= { vplsNotifications 1 }

vplsFwdFullAlarmRaised NOTIFICATION-TYPE
    OBJECTS {
        vplsConfigVpnId,
        vplsConfigFwdFullHighWatermark,
        vplsConfigFwdFullLowWatermark
    }
    STATUS          current

```

DESCRIPTION

"The vplsFwdFullAlarmRaised notification is generated when the utilization of the Forwarding database is above the value specified by vplsConfigFwdFullHighWatermark. The object instances included in the notification are the ones associated with the VPLS service which has exceeded the threshold."

```

        ::= { vplsNotifications 2 }

vplsFwdFullAlarmCleared NOTIFICATION-TYPE
    OBJECTS {
        vplsConfigVpnId,
        vplsConfigFwdFullHighWatermark,
        vplsConfigFwdFullLowWatermark
    }
    STATUS current
    DESCRIPTION
        "The vplsFwdFullAlarmCleared notification is
        generated when the utilization of the Forwarding
        database is below the value specified by
        vplsConfigFwdFullLowWatermark.

        The object instances included in the notification are
        the ones associated with the VPLS service which has
        fallen below the threshold."
    ::= { vplsNotifications 3 }

-- Conformance Section

vplsCompliances
    OBJECT IDENTIFIER ::= { vplsConformance 1 }
-- Compliance requirement for fully compliant implementations

vplsModuleFullCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "Compliance requirement for implementations that
        provide full support for VPLS-GENERIC-MIB.
        Such devices can then be monitored and configured using
        this MIB module."
    MODULE -- this module

    MANDATORY-GROUPS {
        vplsGroup,
        vplsPwBindGroup,
        vplsNotificationGroup
    }

```

```

::= { vplsCompliances 1 }

-- Compliance requirement for read-only implementations.

vplsModuleReadOnlyCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "Compliance requirement for implementations that only
        provide read-only support for VPLS-GENERIC-MIB.
        Such devices can then be monitored but cannot be
        configured using this MIB modules."

MODULE -- this module

    MANDATORY-GROUPS {
        vplsGroup,
        vplsPwBindGroup,
        vplsNotificationGroup
    }

    OBJECT            vplsConfigName
    MIN-ACCESS        read-only
    DESCRIPTION
        "Write access is not required."

    OBJECT            vplsConfigDescr
    MIN-ACCESS        read-only
    DESCRIPTION
        "Write access is not required."

    OBJECT            vplsConfigAdminStatus
    MIN-ACCESS        read-only
    DESCRIPTION
        "Write access is not required."

    OBJECT            vplsConfigMacLearning
    MIN-ACCESS        read-only
    DESCRIPTION
        "Write access is not required."

    OBJECT            vplsConfigDiscardUnknownDest
    MIN-ACCESS        read-only
    DESCRIPTION
        "Write access is not required."

```

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```
OBJECT          vplsConfigMacAging
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsConfigFwdFullHighWatermark
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsConfigFwdFullLowWatermark
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsConfigRowStatus
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsConfigMtu
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsPwBindConfigType
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsPwBindType
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."

OBJECT          vplsPwBindRowStatus
MIN-ACCESS      read-only
DESCRIPTION
    "Write access is not required."
```

```
::= { vplsCompliances 2 }
```

-- Units of conformance.

```
vpplsGroups
  OBJECT IDENTIFIER ::= { vpplsConformance 2 }
```

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```
vpplsGroup OBJECT-GROUP
  OBJECTS {
    vpplsConfigName,
    vpplsBgpADConfigRouteDistinguisher,
    vpplsBgpRteTargetRTType,
    vpplsBgpRteTargetRT,
    vpplsBgpRteTargetRowStatus,
    vpplsBgpRteTargetStorageType,
    vpplsBgpADConfigPrefix,
    vpplsBgpADConfigVplsId,
    vpplsBgpADConfigRowStatus,
    vpplsBgpADConfigStorageType,
    vpplsConfigDescr,
    vpplsConfigAdminStatus,
    vpplsConfigMacLearning,
    vpplsConfigDiscardUnknownDest,
    vpplsConfigMacAging,
    vpplsConfigVpnId,
    vpplsConfigFwdFullHighWatermark,
    vpplsConfigFwdFullLowWatermark,
    vpplsConfigRowStatus,
    vpplsConfigIndexNext,
    vpplsConfigMtu,
    vpplsConfigStorageType,
    vpplsConfigSignalingType,
    vpplsStatusOperStatus,
    vpplsStatusPeerCount,
    vpplsStatusNotifEnable,
    vpplsNotificationMaxRate
  }
  STATUS          current
  DESCRIPTION
    "The group of objects supporting
```



```

        management of L2VPN VPLS services"
 ::= { vplsGroups 1 }

vplsPwBindGroup OBJECT-GROUP
  OBJECTS {
    vplsPwBindConfigType,
    vplsPwBindType,
    vplsPwBindRowStatus,
    vplsPwBindStorageType
  }
  STATUS          current
  DESCRIPTION
    "The group of objects supporting
    management of

```

```

        Pseudo Wire (PW) Binding to VPLS."
 ::= { vplsGroups 2 }

vplsNotificationGroup NOTIFICATION-GROUP
  NOTIFICATIONS {
    vplsStatusChanged,
    vplsFwdFullAlarmRaised,
    vplsFwdFullAlarmCleared
  }
  STATUS          current
  DESCRIPTION
    "The group of notifications supporting
    the Notifications generated for
    VPLS Services"
 ::= { vplsGroups 3 }

END

```

[6.2.](#) VPLS-LDP-MIB Object definitions

This MIB module makes references to the following documents.
[\[RFC2578\]](#), [\[RFC2579\]](#), [\[RFC2580\]](#), [\[RFC3411\]](#),
[\[RFC2863\]](#), [\[RFC4265\]](#) and [\[RFC3813\]](#).

```

VPLS-LDP-MIB DEFINITIONS ::= BEGIN

```

```

IMPORTS
MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE,
Unsigned32, transmission
    FROM SNMPv2-SMI
                                -- RFC2578

MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
    FROM SNMPv2-CONF
                                -- RFC2580

TruthValue
    FROM SNMPv2-TC
                                -- RFC2579
pwIndex, pwID
    FROM PW-STD-MIB

vplsConfigIndex, vplsConfigName
    FROM VPLS-GENERIC-MIB;

vplsLdpDraft01MIB MODULE-IDENTITY
-- RFC Editor: Please replace vplsLdpDraft01MIB with
--                vplsLdpMIB throughout the MIB and remove
--                this note.

```

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```

LAST-UPDATED "201302221200Z" -- 22 Feb 2013 12:00:00 GMT
ORGANIZATION "Layer 2 Virtual Private Networks (L2VPN)
                Working Group"

```

CONTACT-INFO

"

Rohit Mediratta

Email: Rohit.mediratta@alcatel-lucent.com

The L2VPN Working Group (email distribution l2vpn@ietf.org,
<http://www.ietf.org/html.charters/l2vpn-charter.html>)

"

DESCRIPTION

"Copyright (C) The IETF Trust (2013). The initial
version of this MIB module was published in RFC XXXX.

-- RFC Editor: Please replace XXXX with RFC number & remove

-- this note.

For full legal notices see the RFC itself or see:
<http://www.ietf.org/copyrights/ianamib.html>

This MIB module contains managed object definitions for
LDP signaled Virtual Private LAN Services as in
[RFC4762]

This MIB module enables the use of any underlying pseudowire
network. "

-- Revision history.

REVISION

"201302221200Z" -- 22 Feb 2013 12:00:00 GMT

DESCRIPTION "Editorial changes."

REVISION

"200608301200Z" -- 30 Aug 2006 12:00:00 GMT

DESCRIPTION "Initial version published as part of RFC YYYY."

-- RFC Editor: please replace YYYY with IANA assigned value, and
-- delete this note.

::= { transmission XXXX }

-- RFC Editor: please replace XXXX with IANA assigned value, and
-- delete this note.

-- Top-level components of this MIB.

-- Notifications

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vplsLdpNotifications OBJECT IDENTIFIER

::= { vplsLdpDraft01MIB 0 }

-- Tables, Scalars

vplsLdpObjects OBJECT IDENTIFIER

::= { vplsLdpDraft01MIB 1 }

-- Conformance

vplsLdpConformance OBJECT IDENTIFIER

::= { vplsLdpDraft01MIB 2 }

```

vplsLdpConfigTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF VplsLdpConfigEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table specifies information for configuring
        and monitoring LDP specific parameters for
        Virtual Private Lan Services (VPLS)."
```

::= { vplsLdpObjects 1 }

```

vplsLdpConfigEntry OBJECT-TYPE
    SYNTAX          VplsLdpConfigEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "A row in this table represents LDP specific information
        for Virtual Private Lan Services (VPLS) in a packet network.
        It is indexed by vplsConfigIndex, which uniquely
        identifies a single VPLS.
```

A row is automatically created when a VPLS service is configured using LDP signaling.

None of the read-create objects values can be changed when vplsRowStatus is in the active(1) state. Changes are allowed when the vplsRowStatus is in notInService(2) or notReady(3) states only. If the operator needs to change one of the values for an active row the vplsConfigRowStatus should be first changed to notInService(2), the objects may then be changed, and finally the vplsConfigRowStatus should be changed to active(1) in order to re-initiate the signaling process with the new values in effect.

```

"
INDEX          { vplsConfigIndex }
 ::= { vplsLdpConfigTable 1 }
```

```

VplsLdpConfigEntry ::=
    SEQUENCE {
```

```

vplsLdpConfigMacAddrWithdraw
}

```

vplsLdpConfigMacAddrWithdraw OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object specifies if MAC address withdrawal is enabled in this service. If this object is true then MAC address withdrawal is enabled. If false, then MAC address withdrawal is disabled."

DEFVAL { true }

::= { vplsLdpConfigEntry 1 }

-- VPLS LDP PW Binding Table

vplsLdpPwBindTable OBJECT-TYPE

SYNTAX SEQUENCE OF VplsLdpPwBindEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table provides LDP specific information for an association between a VPLS service and the corresponding pseudowires. A service can have more than one pseudowire association. Pseudowires are defined in the pwTable."

::= { vplsLdpObjects 2 }

vplsLdpPwBindEntry OBJECT-TYPE

SYNTAX VplsLdpPwBindEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Each row represents an association between a VPLS instance and one or more pseudowires defined in the pwTable. Each index is unique in describing an entry in this table. However both indexes are required to define the one to many association of service to pseudowire.

An entry in this table is instantiated only when LDP signaling is used to configure VPLS service.

Each entry in this table provides LDP specific information for the VPLS represented by

```
        vplsConfigIndex."
INDEX   { vplsConfigIndex, pwIndex }
 ::= { vplsLdpPwBindTable 1 }

VplsLdpPwBindEntry ::=
    SEQUENCE {
        vplsLdpPwBindMacAddressLimit      Unsigned32
    }

vplsLdpPwBindMacAddressLimit OBJECT-TYPE
    SYNTAX      Unsigned32 (0..4294967295)
    MAX-ACCESS   read-write
    STATUS      current
    DESCRIPTION
        "The value of this object specifies the maximum number
         of learned and static entries allowed in the
         Forwarding database for this PW Binding. The value 0
         means there is no limit for this PW Binding."
    DEFVAL      { 0 }
    ::= { vplsLdpPwBindEntry 1 }

-- VPLS LDP Service Notifications

vplsLdpPwBindMacTableFull NOTIFICATION-TYPE
    OBJECTS {
        vplsConfigName,
        pwID
    }
    STATUS      current
    DESCRIPTION
        "The vplsLdpPwBindMacTableFull notification is generated
         when the number of learned MAC-Addresses increases to
         the value specified in vplsLdpPwBindMacAddressLimit."
    ::= { vplsLdpNotifications 1 }

-- Conformance Section

vplsLdpCompliances
    OBJECT IDENTIFIER ::= { vplsLdpConformance 1 }

-- Compliance requirement for fully compliant implementations

vplsLdpModuleFullCompliance MODULE-COMPLIANCE
    STATUS current
```

DESCRIPTION

"Compliance requirement for implementations that

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provide full support for VPLS-LDP-MIB.
Such devices can then be monitored and configured using
this MIB module."

MODULE -- this module

```
MANDATORY-GROUPS {  
    vplsLdpGroup,  
    vplsLdpNotificationGroup  
}
```

```
::= { vplsLdpCompliances 1 }
```

-- Compliance requirement for read-only implementations.

vplsLdpModuleReadOnlyCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"Compliance requirement for implementations that only
provide read-only support for VPLS-LDP-MIB.
Such devices can then be monitored but cannot be
configured using this MIB modules."

MODULE -- this module

```
MANDATORY-GROUPS {  
    vplsLdpGroup,  
    vplsLdpNotificationGroup  
}
```

```
OBJECT          vplsLdpConfigMacAddrWithdraw
```

```
MIN-ACCESS      read-only
```

DESCRIPTION

"Write access is not required."

```
OBJECT          vplsLdpPwBindMacAddressLimit
```

```
MIN-ACCESS      read-only
```

DESCRIPTION

"Write access is not required."

::= { vplsLdpCompliances 2 }

-- Units of conformance.

vplsLdpGroups

OBJECT IDENTIFIER ::= { vplsLdpConformance 2 }

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vplsLdpGroup OBJECT-GROUP

OBJECTS {

vplsLdpConfigMacAddrWithdraw,

vplsLdpPwBindMacAddressLimit

}

STATUS current

DESCRIPTION

"The group of objects supporting

management of L2VPN VPLS services using LDP."

::= { vplsLdpGroups 1 }

vplsLdpNotificationGroup NOTIFICATION-GROUP

NOTIFICATIONS {

vplsLdpPwBindMacTableFull

}

STATUS current

DESCRIPTION

"The group of notifications supporting

the Notifications generated for

VPLS Ldp Service"

::= { vplsLdpGroups 2 }

END

[6.3.](#) VPLS-BGP-MIB Object definitions

VPLS-BGP-MIB DEFINITIONS ::= BEGIN


```

IMPORTS
MODULE-IDENTITY, OBJECT-TYPE,
    Unsigned32, transmission
    FROM SNMPv2-SMI
                                -- RFC2578

MODULE-COMPLIANCE, OBJECT-GROUP
    FROM SNMPv2-CONF
                                -- RFC2580

RowStatus, StorageType
    FROM SNMPv2-TC
                                -- RFC2579

SnmAdminString
    FROM SNMP-FRAMEWORK-MIB
                                -- RFC3411

pwIndex
    FROM PW-STD-MIB
                                -- RFC5601

vplsConfigIndex

```

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```

FROM VPLS-GENERIC-MIB
;

```

```

vplsBgpDraft01MIB MODULE-IDENTITY

```

```

-- RFC Editor: Please replace vplsBgpDraft01MIB with
--           vplsBgpMIB throughout the MIB and remove
--           this note.

```

```

    LAST-UPDATED "201302221200Z" -- 22 Feb 2013 12:00:00 GMT

```

```

    ORGANIZATION "Layer 2 Virtual Private Networks (L2VPN)
                  Working Group"

```

```

CONTACT-INFO

```

```

    "
    V. J. Shah
    Email: vshah@juniper.net

```

```

    The L2VPN Working Group (email distribution l2vpn@ietf.org,
    http://www.ietf.org/html.charters/l2vpn-charter.html)
    "

```

```

DESCRIPTION

```

```

    "Copyright (C) The IETF Trust (2013). The initial

```

version of this MIB module was published in RFC XXXX.
-- RFC Editor: Please replace XXXX with RFC number & remove
-- this note.

For full legal notices see the RFC itself or see:
<http://www.ietf.org/copyrights/ianamib.html>

This MIB module contains managed object definitions for
BGP signaled Virtual Private LAN Services as in
[RFC4761]

This MIB module enables the use of any underlying pseudowire
network. "

-- Revision history.
REVISION
 "201302221200Z" -- 22 Feb 2013 12:00:00 GMT
DESCRIPTION "Initial version published as part of RFC YYYY."
-- RFC Editor: please replace YYYY with IANA assigned value, and
-- delete this note.
 ::= { transmission XXXX }
-- RFC Editor: please replace XXXX with IANA assigned value, and
-- delete this note.

-- Top-level components of this MIB.

-- Tables, Scalars
vplsBgpObjects OBJECT IDENTIFIER
 ::= { vplsBgpDraft01MIB 1 }
-- Conformance
vplsBgpConformance OBJECT IDENTIFIER
 ::= { vplsBgpDraft01MIB 2 }

-- Vpls Bgp Config Table

vplsBgpConfigTable OBJECT-TYPE
 SYNTAX SEQUENCE OF VplsBgpConfigEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"This table specifies information for configuring and monitoring BGP specific parameters for Virtual Private LAN Services (VPLS)."
 ::= { vplsBgpObjects 1 }

vplsBgpConfigEntry OBJECT-TYPE

SYNTAX VplsBgpConfigEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A row in this table represents BGP specific information for Virtual Private LAN Services (VPLS) in a packet network. It is indexed by vplsConfigIndex, which uniquely identifies a single instance of a VPLS service.

A row is automatically created when a VPLS service is created that is configured to use BGP signaling. None of the read-create objects values can be changed when vplsRowStatus is in the active(1) state. Changes are allowed when the vplsRowStatus is in notInService(2) or notReady(3) states only. If the operator needs to change one of the values for an active row the vplsConfigRowStatus should be first changed to notInService(2), the objects may then be changed, and finally the vplsConfigRowStatus should be changed to active(1) in order to re-initiate the signaling process with the new values in effect.

"

INDEX { vplsConfigIndex }

::= { vplsBgpConfigTable 1 }

VplsBgpConfigEntry ::=

SEQUENCE {

vplsBgpConfigVERangeSize Unsigned32
 }

vplsBgpConfigVERangeSize OBJECT-TYPE

SYNTAX Unsigned32 (0..65535)

```

MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "Specifies the size of the range of VE ids in this
    VPLS service. This number controls the size of the
    label block advertised for this VE by the PE.
    A value of 0 indicates that the range is not
    configured and the PE derives the range value
    from received advertisements from other PEs."
DEFVAL          { 0 }
::= { vplsBgpConfigEntry 1 }

-- Vpls Edge Device (VE) Identifier Table

vplsBgpVETable OBJECT-TYPE
    SYNTAX       SEQUENCE OF VplsBgpVEEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This table associates VPLS Edge devices to a VPLS service"
    ::= { vplsBgpObjects 2 }

vplsBgpVEEntry OBJECT-TYPE
    SYNTAX       VplsBgpVEEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "An entry in this table is created for each VE Id
        configured on a PE for a particular VPLS service
        instance.

        Entries in this table may be created or deleted
        through SNMP, as side-effects of console or other
        non-SNMP management commands, or upon learning via
        autodiscovery.

        It is optional for the agent to allow entries to be
        created that point to non-existent entries in
        vplsConfigTable."
    INDEX { vplsConfigIndex, vplsBgpVEId }
    ::= { vplsBgpVETable 1 }

```

```

VplsBgpVEEntry ::= SEQUENCE {
    vplsBgpVEId      Unsigned32,
    vplsBgpVEName    SnmpAdminString,
    vplsBgpVEPreference Unsigned32,
    vplsBgpVERowStatus RowStatus,
    vplsBgpVEStorageType StorageType
}

```

```

vplsBgpVEId OBJECT-TYPE
    SYNTAX      Unsigned32 (1..65535)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A secondary index identifying a VE within an
         instance of a VPLS service."
    ::= { vplsBgpVEEntry 1 }

```

```

vplsBgpVEName OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Descriptive name for the site or u-PE associated with
         this VE Id."
    DEFVAL { "" }
    ::= { vplsBgpVEEntry 2 }

```

```

vplsBgpVEPreference OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65535)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Specifies the preference of the VE Id on this PE
         if the site is multi-homed and VE Id is re-used."
    DEFVAL      { 0 }
    ::= { vplsBgpVEEntry 3 }

```

```

vplsBgpVERowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This variable is used to create, modify, and/or
         delete a row in this table.

        All other objects in this row must be set to valid
        values before this object can be set to active(1).

```

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When a row in this table is in active(1) state, no objects in that row can be modified except vplsBgpSiteRowStatus."

```
::= { vplsBgpVEEntry 5 }
```

vplsBgpVEStorageType OBJECT-TYPE

SYNTAX	StorageType
MAX-ACCESS	read-create
STATUS	current

DESCRIPTION

"This variable indicates the storage type for this row."

DEFVAL { volatile }

```
::= { vplsBgpVEEntry 6 }
```

-- VPLS BGP PW Binding Table

vplsBgpPwBindTable OBJECT-TYPE

SYNTAX	SEQUENCE OF VplsBgpPwBindEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"This table provides BGP specific information for an association between a VPLS service and the corresponding pseudowires. A service can have more than one pseudowire association. Pseudowires are defined in the pwTable."

```
::= { vplsBgpObjects 3 }
```

vplsBgpPwBindEntry OBJECT-TYPE

SYNTAX	VplsBgpPwBindEntry
MAX-ACCESS	not-accessible
STATUS	current

DESCRIPTION

"Each row represents an association between a VPLS instance and one or more Pseudowires defined in the pwTable. Each index is unique in describing an entry in this table. However both indexes are required to define the one to many association of service to pseudowire.

An entry in this table is instantiated only when

BGP signaling is used to configure VPLS service.

Each entry in this table provides BGP specific information for the VPLS represented by vplsConfigIndex."

```
INDEX { vplsConfigIndex, pwIndex }  
::= { vplsBgpPwBindTable 1 }
```

```
VplsBgpPwBindEntry ::=
  SEQUENCE {
    vplsBgpPwBindLocalVEId      Unsigned32,
    vplsBgpPwBindRemoteVEId     Unsigned32
  }
vplsBgpPwBindLocalVEId  OBJECT-TYPE
  SYNTAX      Unsigned32 (1..65535)
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "Identifies the local VE that this pseudowire
     is associated with."
  ::= { vplsBgpPwBindEntry 1 }

vplsBgpPwBindRemoteVEId  OBJECT-TYPE
  SYNTAX      Unsigned32 (1..65535)
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "Identifies the remote VE that this pseudowire
     is associated with."
  ::= { vplsBgpPwBindEntry 2 }
```

-- Conformance Section

-- Compliance requirement for fully compliant implementations

```
vplsBgpCompliances
  OBJECT IDENTIFIER ::= { vplsBgpConformance 1 }
```

```

vplsBgpModuleFullCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "Compliance requirement for implementations that
        provide full support for VPLS-BGP-MIB.
        Such devices can then be monitored and configured using
        this MIB module."

```

```

MODULE -- this module

```

```

    MANDATORY-GROUPS {
        vplsBgpConfigGroup,
        vplsBgpVEGroup,
        vplsBgpPwBindGroup
    }

```

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```

    }
    ::= { vplsBgpCompliances 1 }

-- Compliance requirement for read-only implementations.

vplsBgpModuleReadOnlyCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "Compliance requirement for implementations that only
        provide read-only support for VPLS-BGP-MIB.
        Such devices can then be monitored but cannot be
        configured using this MIB modules."

```

```

MODULE -- this module

```

```

    MANDATORY-GROUPS {
        vplsBgpConfigGroup,
        vplsBgpVEGroup,
        vplsBgpPwBindGroup
    }

```

```

    OBJECT          vplsBgpConfigVERangeSize
    MIN-ACCESS      read-only

```


DESCRIPTION
"Write access is not required."

OBJECT vplsBgpVEName
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT vplsBgpVEPreference
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT vplsBgpVERowStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

::= { vplsBgpCompliances 2 }

-- Units of conformance.

vplsBgpGroups

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OBJECT IDENTIFIER ::= { vplsBgpConformance 2 }

vplsBgpConfigGroup OBJECT-GROUP

OBJECTS {
vplsBgpConfigVERangeSize
}

STATUS current

DESCRIPTION

"The group of objects supporting configuration
of L2VPN VPLS services using BGP"

::= { vplsBgpGroups 1 }

vplsBgpVEGroup OBJECT-GROUP

OBJECTS {
vplsBgpVEName,
vplsBgpVEPreference,
vplsBgpVERowStatus,

```

        vplsBgpVEStorageType
    }
    STATUS          current
    DESCRIPTION
        "The group of objects supporting management of VPLS
        Edge devices for L2VPN VPLS services using BGP"
    ::= { vplsBgpGroups 2 }

vplsBgpPwBindGroup OBJECT-GROUP
    OBJECTS {
        vplsBgpPwBindLocalVEId,
        vplsBgpPwBindRemoteVEId
    }
    STATUS          current
    DESCRIPTION
        "The group of objects supporting management of
        Pseudo Wires for L2VPN VPLS services using BGP"
    ::= { vplsBgpGroups 3 }

END

```

7. Security Considerations

It is clear that the MIB modules described in this document in association with the PW-STD-MIB [[RFC5601](#)] are potentially useful for monitoring of VPLS capable LERs. These MIB modules can also be used for configuration of certain objects, and anything that can be configured can be incorrectly configured, with potentially undesirable results.

While the read-write and read-create objects must be protected by

secure SNMP, none of them are especially disruptive. Similarly, while the read-only objects might present privacy concerns and due consideration should be given to protecting them with secure SNMP, none of these objects contain especially sensitive information.

8. IANA Considerations

```

-- (Note to RFC-Editor:)
--   IANA is requested to root the MIB modules

```

-- contained in this document under the transmission subtree.
--

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10. Acknowledgments

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